

A *FORMICA* SLAVE-MAKER RAIDING THE NEST
OF A MYRMICINE ANT

BY W. L. BROWN, JR.

Museum of Comparative Zoology

Slave-making *Formica* of the *sanguinea* group normally raid the nests of *Formica* of the *fusca*, *pallidefulva* or *neogagates* groups to obtain pupae to be reared into slavery.

Occasionally, *F. sanguinea* group species have been seen to raid other formicine genera, especially *Lasius*, and Wheeler (1905, Bull. Amer. Mus. Nat. Hist. 21: 11) even recorded a raid on a nest of *Myrmica* (subfamily *Myrmicinae*) species that he watched in Connecticut. Raids by *Formica* on myrmicines apparently are rare occurrences, so the circumstances of such a raid are worth reporting.

On August 22, 1958, at Brown County State Park, Indiana, I witnessed a raid by *Formica subintegra* Emery on a nest of the much smaller myrmicine ant *Aphaenogaster rudis* Emery. The nest entrances of the raiders and the victims were simple holes situated only about one meter apart in the bare clay soil of a hilltop campground, shaded by hickories and a few oaks. The raid was first noticed at about 3 P. M., about 3 hours after a heavy rain had ceased. The sky was partly cloudy, and the air temperature stood at about 70°F.

Most of the visible activity occurred in and around the entrance to the *A. rudis* nest. Six dead or badly maimed *rudis* workers lay near the entrance, accompanied by one crippled *F. subintegra* worker. One *subintegra* worker grappled with a *rudis* worker and put it out of action while I watched. At irregular intervals, *subintegra* workers emerged, most of them carrying a pupa or a dead or struggling worker of *A. rudis*, with which they returned directly to their own nest and entered there. Two *subintegra* workers carried folded-up workers of their own species; when disturbed, these workers dropped their burdens, which proved to be active and apparently unhurt.

Around their nest entrance, at some distance, circled a few *Aphaenogaster* workers, mostly each carrying one of their own larvae or pupae. Their behavior resembled that of *Formica* slave species when being raided by *F. subintegra*.

Also running in the general vicinity of both nests, but not seen to participate directly in the raid, were a few workers of *Formica fusca* (*s. lat.*), all of them slave members of the *F. subintegra* colony.

The raid was under observation for about one hour, and my impression was that it had been in progress for some time before I first saw it. It compared with the terminal stages of other raids I have seen *F. subintegra* make on other *Formica* species. The raid was terminated by heavy rain in the early evening, and was not continued on the next day.

On partial excavation, pupae and dead or injured workers of *A. rudis* were found in the *subintegra* nest, but there were no *Aphaenogaster* workers present and intact that seemed to be acting as slaves. Therefore, I concluded that the raid would probably not be successful in introducing the *Aphaenogaster* into adult slavery.

In the present observation, it is not known whether the captured pupae or adult *Aphaenogaster* workers were eaten by the *Formica* raiders. But even if they were, such behavior is not necessarily of more than routine significance, since ants will eat their own pupae under various circumstances.

My own interpretation of the raid is based on the apparent lack of nests of suitable slave species of *Formica* in the campground, and the abnormally exposed nature of the *Aphaenogaster* nest. Since *F. subintegra* workers had been seen foraging singly over the area for several days previous to the raid described, I suspect that these represented scouts that were unsuccessful in locating suitable *Formica* spp. nests to plunder. Under such conditions, the pressure for the release of raiding activity may have been high, so that eventually even such a poor target as the *Aphaenogaster* nest came to represent a stimulus sufficient to start and maintain a raid.